

JOURNAL

OF THE

New York Entomological Society.

VOL. XXXI.

JUNE, 1923.

No. 2

THE GROUP TRACHES IN NORTH AMERICA. PART II¹. THE GENUS BRACHYS (COLEOPTERA).

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Brachys Solier, 33-312.

Broadly ovate, triangular in form; scutellum small, triangular, surface glabrous, very variable, flat to concave, or with a transverse carina, such variations occurring in large series of the same species; thorax widest and transversely depressed at the base; front convex, hind angles with a distinct carina, eyes convex; head longitudinally impressed with a more or less distinct glabrous tubercle above each eye; antennæ very short and inconspicuous, received in distinct grooves on the under side of the thorax near the margins, 11-jointed, first two joints largely inflated, next three small suboval, last six serrate; elytra rather irregularly punctured and with a distinct lateral carina reaching almost to the apex which is pectinate, two other carinæ on elytra shorter and less distinct (carinæ interrupted or entirely wanting in certain Central American species); elytra concave along margins behind shoulders, sides sinuate to about apical half thence narrowed toward apex; entire dorsal surface with more or less pubescence arranged in rather distinct sinuate fasciæ on elytra; legs retractile, tibiæ linear, last tarsal joint as long as first four combined; prosternum obtuse behind; ventral surface smooth to very finely punctulate, ventral segments rather convex with short sparse pubes-

¹ Continued from JOUR. N. Y. ENT. SOC., Vol. XXVIII, No. 2, 1920, pp. 136-150. Part I, The Genera *Pachyschelus* and *Taphrocerus*.

cence arranged in somewhat transverse lines, last ventral segment of females in some species with a deep emargination and with long fimbriate hairs along emargination. Our species are black, usually with a metallic lustre.

Despite the great variations in size and color of some of our commonest species we do not feel that the erection of any new species is warranted. In a limited collection containing but few examples, the extremes could be easily separated into valid species but upon assembling a larger series innumerable intergrading individuals would make the task difficult and cause no end of trouble for future students. Even with the present eight well-defined species and three varieties, the construction of a workable key was rather difficult and as all of our forms possess the distinct lateral carina¹ of the elytra, we are forced to base one division solely on the sexual characters of the females which fortunately for this purpose at least, appear to far outnumber the males.

The genus is rich in specimens if not species and its members occur in all of our Eastern States from Canada through Florida and out west from Edmonton, Alberta to Texas, Arizona, thence through Central America to Brazil and Peru. Strange to say the Pacific Coast States appear to be without a single representative.

Comparatively little is known of the life histories of the members of the genus although it is quite probable that most of them are leaf-miners in their larval stages and leaf-feeders as adults. In the literature the habits of *Brachys ovatus* and *Brachys arosus* have been referred to briefly by Packard, Riley, Gillette, Felt, Blatchley, Burke, Knull and others. In New Jersey we have observed *Brachys ovatus* feeding on the foliage of elm, sugar maple, white oak, chestnut oak, pin oak, scrub oak, black oak, post oak, chestnut, beech and hickory with the oaks as preferred food plants and *Brachys arosus* feeding on beech, linden witch hazel, elm, chestnut, sugar maple, red maple and various species of oaks with the oaks as preferred food plants. The feeding of both species is similar and quite characteristic, the tissue between the larger veins of the leaves being consumed. This results in the injured portion having a somewhat ragged, geometrical appearance.

¹The key in Biol. Cent. Amer., Vol. III, Part I, p. 131, separates the species by the lateral carina being continuous, interrupted or entirely wanting.

The eggs resemble drops of transparent, watery excrement, being very flat, oval and rounded at both ends. They are deposited as a rule on the upper leaf surface many of them close to the margins. The young larvæ enter the leaf tissue directly beneath the eggs and mine the tissue in irregular areas around the eggs or in gradually widening, elongate areas away from the eggs and somewhat parallel to and against the leaf edges. Many mines are blotch-like and while they may occur on any portion of a leaf, most of them are located near the edges. As a rule each mine contains only one larva and is found on a leaf which is comparatively uninjured by adult feeding. The mines are visible on both leaf surfaces more so on the upper where they appear as brown, dead spots or areas. On large trees only the outer leaves which are exposed to plenty of sunlight appear to be mined or fed upon. Most of the mines occur on oak foliage in spite of the fact that the leaves of many other trees are used as food by the beetles. After becoming full grown, the larvæ leave the mines and pupate on or slightly under the surface of the ground.

The larvæ of both *ovatus* and *ærosus* are slightly wedge-shaped and much flattened. The body is composed of thirteen well-defined segments and is deeply notched or lobed. The head and mouth parts are dark and the head is more or less retracted into the first segment. The first segment is as broad or slightly broader than the following ones, the body gradually tapering posteriorly. The first segment bears a large well-developed, somewhat smooth, shining, subquadrate plate on both dorsal and ventral surfaces, the dorsal plate having a median line groove. The first seven abdominal segments are produced laterally into pronounced, rounded lobes and the lobes of the fifth to ninth segments each bear a group of several stout, minute spines. The posterior edge of the eighth abdominal segment is fringed with a row of minute, stout spines. The color of the larva is whitish with head and mouth parts dark and a broad, median, dorsal, abdominal line is indicated on segments one to eight. Both eggs and larvæ are parasitized by the larvæ of *Closterocerus cinctipennis* Ash.

KEY TO THE SPECIES OF BRACHYS.

1. Tubercle above the eye very prominent, convex, and extended when viewed laterally; apical half of elytra sometimes with a tuft of black and ferruginous hairs.....2.
- Tubercle above the eye not at all prominent or extended; apical half of elytra never with a tuft of hairs.....3.

2. Elytra each with a distinct tuft of black and ferrugineous hairs; tubercle moderately prominent and extended; length, 5-5.5 mm.
floccosus Mannerheim.
 Elytra without a tuft of hairs; tubercle greatly extended and prominent; length, 4-4.5 mm.....*cephalicus* Schaeffer.
3. Last ventral segment of female deeply emarginate with long, fimbriate hairs along emargination; elytra usually with three or more narrow, sinuate white fasciæ.....4.
 Last ventral segment truncate or rounded in both sexes; elytra without three sinuate, narrow, white fasciæ.....8.
4. Steel blue; pubescence whitish, arranged in narrow, sinuate fascia.
tessellatus Fabricius.
 Pubescence denser, golden silvery or ferrugineous bordered by narrow white fasciæ.....5.
5. Vestiture very dense, form broad, punctuation of elytra coarse and regular6.
 Vestiture not so dense; form usually more narrow; punctuation of elytra shallow and uneven, apical half of elytra with broad, glabrous, transverse space.....7.
6. Pubescence ferrugineous bordered by narrow white fasciæ.
floricola Kerremans.
 Pubescence entirely light golden to silvery.
floricola var. *blatchleyi* new variety.
7. Pubescence ferrugineous bordered by narrow white fasciæ or maculæ.
ovatus Weber.
 Pubescence entirely light golden to silvery.
ovatus var. *bellporti* new variety.
8. Black; elytra with a single, broad, white fascia just behind the centre; last ventral segment broadly rounded.....*fasciferus* Schwarz.
 Metallic; elytra without single, broad white fascia; last ventral segment not noticeably broadly rounded.....9.
9. Pubescence gray to fulvous or yellowish, generally bicolored; elytra usually blue sometimes blackish or with æneous or purplish lustre; length, 3-5.75 mm.....*ærosus* Melsheimer.
 Pubescence brilliant cupreous to ferrugineous; elytra usually cupreous or brassy.....*ærosus* var. *rufescens* new variety.
 Pubescence dense, uniformly light golden to silvery; elytra black often with æneous lustre; length, 3-3.75 mm.....*ærginosus* Gory.

Brachys floccosus Mannerheim, 37-118 (Plate XI, fig. 1).

(Translation of original description.)

“Short ovate, obscure glittering-violaceous bronze, head excavated 4-nodulose, base of thorax strongly dilated, variegated with griseous and fulvous, sides of elytra costate striate-punctate, base densely

whitish pubescent from there variegated with black and griseous pubescence, separated a little behind middle into two bands, pubescence at base orange, at apex black. Mexico: Oaxaca Longit. 5 mm. Latit. 3 mm.

"Head deflexed, front excavated variegated with griseous and orange pubescence, with a pair of small shining nodules, vertex globose, binodulate, largest tubercle less elevated. Antennæ shorter than head and thorax together, cupreous. Thorax short, front twice as narrow as base, sides scarcely rounded, base deeply trisinate, median lobe strongly produced, above roundly elevated, posteriorly transversely depressed, variegated with griseous fulvous and blackish pubescence. Scutellum triangular, obscure violaceous. Elytra at base as broad as thorax and three times longer than the same, humeri straight prominent, sides from there on almost straight, feebly margined, gradually narrowed a little behind the middle on both sides, carinate from humeri to beyond middle, carina curved inwardly, remotely striate-punctate, anterior third entirely thickly whitish-pubescent from there on variegated with black, griseous and fulvous pubescence, separated a little behind the middle into two obliquely placed bands, pubescence orange at base, black at apex and behind that near apex two whitish pubescent bands, outwardly orange. Ventral surface with feet violaceous-cupreous punctulate."

Ovate. Elytra usually steel-blue, rather gradually narrowed toward the apex, pubescence dense, white, forming an indistinct sub-basal fascia bordered with brownish pubescence along the margins which becomes more conspicuous and predominates toward the tips of the elytra; a distinct tuft of black and ferruginous hairs at about apical two-fifths. Thorax, head and ventral surface æneous; a distinct rather bare tubercle above each eye. Last ventral segment broadly truncate, segments punctulate with short, sparse, silvery pubescence. Length 5-5.5 mm.

Localities.—Chirique Mts., January 6 (Hubbard and Schwarz); Huachuca Mts., July 11 (Schaeffer, Wenzel, Biedeman); ARIZONA. Oaxaca, Juquila, Parada (Salle); MEXICO. San Geronimo, Capetillo, Cerro Zunil 4000 feet (Champion): GUATEMALA.

This Central American form is the most beautiful and bizarre of all our species. Its large size, distinct tufts of hairs near the tips of

the elytra and broadly truncate ventral segment at once separate it from all of our other species. On oak (Schaeffer).

Brachys cephalicus Schaeffer, 09-377 (Plate XI, fig. 2).

(Original description.)

"Head strongly convex above the eyes and deeply, longitudinally impressed at middle, giving this part the appearance of two large tuberculiform elevations; between the eyes are two similar, but smaller elevations; surface not very densely clothed with golden pubescence; sculpture rather reticulate. Thorax aeneous, clothed not densely, with golden pubescence; disk smooth, the basal impressions and at apex with large, somewhat ocellate punctures. Elytra as in *ovatus* Web., but the markings towards apex more ferruginous and golden than in that species. Underside black; surface sculpture very finely reticulate, sparsely intermixed with semicircular impressions, each of which gives rise to a single white hair; apex of abdomen coarsely toothed. Length 4 mm. Huachuca Mts., Arizona..

"Readily known from any of the North American species by the head above the eyes more strongly convex than in *floricola* and *fascifera* and by the relatively longer thorax." ..

Localities.—Huachuca Mts. (Schaeffer), "Arizona" (Horn Coll.); ARIZONA.

Very closely related to preceding from which it may be readily separated by the absence of tufts of hair near elytral apices, smaller and narrower size, very prominent tubercle above each eye (which easily distinguishes it from all of the following species) (see figure 2), and the golden pubescence of the thorax, base and tips of the elytra; the rarest of our North American *Brachys* and represented in but few collections. Up to the present Arizona is the only state in which *cephalicus* has been found. In the Horn collection at the Academy in Philadelphia there is a small series bearing the manuscript name *frontosa* Blanchard, all marked males and with only the state label.

Brachys tessellatus (Fabricius), 01-218 (Plate XI, fig. 6).

lugubris Le Conte, 59-251.

(Translation of original description.)

"*Trachys*. palpi four very short, equal. Maxilla bifid. Antennæ moniliform.

Tesselate. I. T. black elytra whitish tessellate. Habitat in Carolina. Mus. D. Bosc. Mouth with maxillæ and palpi. Palpi four very short, equal, filiform, anterior ones scarcely longer four jointed; joints subequal adherent to upper surface of maxillæ, posterior ones three-jointed; joints equal, growing from the external-centre of the ligula. Mandibles short, corneous without teeth, acute. four, very short, equal, filiform, anterior ones, scarcely longer, Maxillæ membranous, bifid; fringe equal, obtuse. Ligula short, membranous, entire. Labium short, corneous, transverse, entire.

"Larger than *T. pygmaea*. Color of head and thorax variable varying from black to obscure aurulate. Elytra substrate often concolorous, whitish-tessellate. Body black, shining."

Broadly ovate, slightly sinuate from shoulder to about apical half thence rather gradually narrowing toward apices of elytra. Shining black to steel-blue in color. Elytra unevenly punctate striate, lateral carina prominent reaching almost to apex, median one less distinct and almost joining lateral carina toward apex, sutural carina rather vague, shorter and interrupted near middle; pubescence whitish to dirty gray, arranged in three irregular, sinuate, transverse fasciæ, which when closely examined are seen to be formed by distinct, individual spots of pubescence; slightly concave behind shoulders which are prominent, tips pectinate, rather truncate. Scutellum large, transverse, not noticeably punctate. Thorax deeply, transversely depressed and widened at base, smooth to very minutely granulate, pubescence along margins becoming sparser toward centre. Head with deep longitudinal impression, rather concave, pubescent. Eyes prominent. Ventral surface steel-blue to æneous or blackish, ventral segments granulate with very short, sparse, whitish, transverse pubescence, last ventral segment of the female deeply emarginate with long golden to silvery hairs along the emargination, male segment rather broadly rounded without hairs, last dorsal segment pectinate in both sexes. Length 4.5-6 mm.

Localities.—Tampa, April 10, Jacksonville, Crescent City (Hubbard and Schwarz); Key West, Lake Mary (Frost and Nicolay collections); FLORIDA. TEXAS. Wilmington, August 1 (Leng); Southern Pines, April 4 (Wenzel, Manee); NORTH CAROLINA. Spring Hill, April 14 (Loding); ALABAMA. INDIANA. (Frost and Leng collections). Beaufort, April 29 (Mason); SOUTH CAROLINA.

A rather uniform species easily identified by its dark color and whitish pubescence. It appears to be confined to the Southern States, the most northern locality known to the authors being Indiana. Certain individuals from here appear to approach *ovatus*, possessing faint dashes of ferrugineous pubescence among the white. This is also the first of several species which have the distinct sexual character of the females being remarkable for the deep emargination of the last ventral segment. After examining a rather lengthy series we find that in the material before us, the males are much the rarer, averaging only one to every thirty females. A recently published record¹ from S. W. Pennsylvania (Dr. Hamilton) we feel is a misidentification and refers to *ovatus* especially as the author Mr. Joseph Knull is inclined to share our view. Mr. C. A. Frost who has examined the type of *lugubris* in the Le Conte collection pronounces it identical with *tessellatus* which species was erroneously placed as a synonym of *ovatus* by Le Conte.

Brachys floricola Kerremans, 00-347 (Plate XI, fig. 4).

cuprascens Blatchley, 13-23.

(Translation of original description.)

"Subheptagonal, wide, short, slightly convex, clear bronze above with the head and depressed parts of pronotum ornamented by a villosity of golden red; the elytra colored by sinuate bands, formed by the golden red hairs and limited anteriorly by a white border on the end, the anterior band less distinct and less regular than the two others, the second being median and the third præapical. Ventral surface black, brilliant and slightly purple. Length 5.3 mm; Width 2.7 mm. Florida.

"Close to *B. purpuratus* Kerrem., of Brazil, but differently colored and of a different elytral design.

"Head irregularly punctate, surmounted posteriorly by two rounded tubercles, glabrous and smooth, separated by a longitudinal furrow. Pronotum convex on the disk and flattened on the sides, posteriorly having a lateral carina situated a certain distance from the border and subparallel to the border, ornamented by a red villosity more dense on the sides than on the disk; the anterior margin being straight; the sides oblique and subsinuate; the base very sinuate with the median

¹ Knull, Can. Ent., 1922, Vol. LIV, No. 4, p. 86.

lobe wide, projecting and angularly curved at its summit. Shield transverse, triangular with the base convex and the sides straight. Elytra covered with a longitudinal series of large points having on both sides, a rib or carina starting at the base and surmounting the humeral callus continuing along the lateral margin a certain distance from it as far as the summit; the latter subtruncate and rounded exteriorly. Ventral surface punctate, prosternum finely granulate."

Broadly ovate. Elytral punctures coarse, large and in moderately regular rows, vestiture dense, elytra with usual lateral carinæ, tips pectinate, truncate to somewhat rounded. Ventral surface blackish with a bronze or purplish lustre, ventral segments very finely granulate with short recumbent, silvery or yellowish, rather sparse hairs; last ventral segment of the female deeply emarginate with long, golden hairs along the emargination; male segment broadly rounded without hairs. Length 4-5.5 mm.

Localities.—Billy's Island, Okefenokee Swamp, June (Leng); GEORGIA. Havlover, March (Hubbard and Schwarz); Jacksonville, Tampa, April 19 (Leng coll.); Enterprise, St. Augustine, April 17, (Frost coll.); Sanford, Ormond, March 29-April 6, Dunedin, March 11-April 7 (Blatchley); Miami, March 31-April 3, La Belle, April 18 (Knull, DeLong); Kissimmee, April 20 (Beutenmuller); Orlando, March, Key West (Nicolay coll.); FLORIDA.

Easily separated from the preceding by the dense reddish pubescence. Although in his description Kerremans mentions the head possessing two rounded, glabrous tubercles, they are scarcely at all convex and in no way approach the distinct knobs so prominent in the *floccosus-cephalicus* group, also the longitudinal impression of the head is much less pronounced and shallower than in most of our species. In the rather extensive series before us the females far outnumber the males and are usually longer and more ovate. With the exception of a single individual from Georgia all the specimens are from Florida where the species is found in numbers.

Brachys floricola var. *blatchleyi* new variety.

Broadly ovate, slightly sinuate from shoulder to about apical half, thence rather gradually narrowed toward apices of elytra. Black, usually with a bluish-purple or more rarely bronzed lustre. Elytral punctures coarse, large, arranged in rather even striæ; lateral carina prominent, median ones less distinct, generally completely concealed by dense pubescence which is entirely of a light golden to silvery color, tips pectinate rather truncate to rounded.

Scutellum large, transverse, impunctate, and glabrous. Thorax and head as in *floricola*, pubescence of uniform silvery golden hue, very dense and almost completely covering tubercles above eyes on head. Ventral surface similar to that of *floricola* except possibly with a denser vestiture, last ventral segment of female deeply emarginate, long hairs along emargination, silvery; male segment broadly rounded. Length, 5-5.5 mm.

Localities.—Dunedin, March 11 (Blatchley); Lake Lucy, March 22 (Powell); Orlando (Pearsall); FLORIDA.

Holotype (♂) in the Nicolay collection. Allotype (♀) in the Frost collection. One paratype in each of the Leng and Schaeffer collections.

This variety is represented before us by four specimens (one male and three females). It is easily separated from *floricola*, which always has reddish brown pubescence bordered anteriorly by a white margin, by its uniform silvery golden vestiture. As in *floricola* the longitudinal impression of the head is remarkably shallow. *Blatchleyi* is evidently much rarer than the type. We take great pleasure in naming this variety after W. S. Blatchley who has done so much in making known the interesting coleopterous fauna of Florida. Undoubtedly Blatchley's reference to *lugubris*¹ Le Conte applies to this variety.

Brachys ovatus Weber, 01-76 (Plate XI, fig. 5).

aurulentus (Kirby), 37-162.

tessellatus ‡ Cast. & Gory, 39-3.

terminans ‡ Cast. & Gory, 39-3.

molestus Gory, 41-332.

lævicauda Le Conte, 59-252.

horni Kerremans, 96-324.

(Translation of original description.)

"Blackish bronze head and thorax golden pubescent, elytra punctate bronze with elevated lines and golden-ferruginous undulating bands. From America. Herschel.

"Size in general three times greater than *B. pygmaea*. Wholly very shining blackish bronze. Head and thorax covered with golden ferruginous pubescence. Margin of thorax reflexed. Elytra punctate with three elevated lines three undulating bands and suture shining. Posterior concolorous. Two small varieties also kindly communicated to me. Herschel. Strongly ovate, small, etc., may constitute a new genus."

¹ Canad. Ent., 1919, Vol. 51, No. 2, p. 30.

Ovate, distinctly sinuate from shoulder to about apical half, thence narrowed toward apices of elytra. Black usually with a virescent or brassy lustre. Elytra unevenly, rather shallowly punctate striate, lateral carina distinct, reaching almost to apex, medial and sutural ones less distinct but usually more so than in *floricola*; pubescence ferruginous (rarely ferrugino-testaceous), arranged in three irregular sinuate, transverse fasciæ which are bordered by more or less distinct bands of whitish pubescence; concave behind shoulders which are prominent, tips pectinate, rather truncate. Scutellum large, transverse smooth. Thorax deeply, transversely depressed and widest at base, front convex, surface smooth to very minutely granulated, covered with a ferruginous pubescence more sparse toward centre. Head with longitudinal impression distinct and usually much deeper than in *floricola*, rather concave pubescent tubercles above eyes not prominent. Ventral surface metallic, segments punctulate with very short, sparse whitish pubescence; last ventral segment of the female deeply emarginate with long dirty, golden hairs along the emargination; male segment broadly rounded to slightly truncate, without hairs; last dorsal segment pectinate in both sexes. Length 4-6.25 mm.

Localities.—This common species has a very wide distribution occurring in the East from Canada to Florida and west to Texas and Mexico where one specimen was taken at Zacualtipan in Hidalgo (Hoge).

Easily separated from the preceding by the usually more elongate and narrower form, less distinct elytral punctuation, sparser pubescence with a much broader glabrous space between medial and subapical bands and long hairs along the emargination of the last ventral segment of the female sparser. *Ovatus* has been redescribed more often than any of our North American *Brachys*. The *lavicauda* of Le Conte is merely the small form which naturally possesses a less distinct pectination of the tips of the abdomen. We believe that the size of the adult depends more or less upon the amount of food consumed by the larva. Sizes of leaves infested, weather conditions during the feeding season, etc., would affect the larval food supply. Mr. H. W. Wenzel takes a very dark and sparsely pubescent form at Da Costa, New Jersey. A partial loss of vestiture may take place naturally.

Brachys ovatus var. **bellporti** new variety.

Size, punctuation, and shape similar to those of *ovatus* differing only in the pubescence being uniformly of a light golden to silvery color. Black, generally with a bright æneous lustre, rarely purplish to bluish. Length, 4.25-6.25 mm.

Localities.—VERMONT (Leng. coll.). Framingham, Natick, May 23-July 27 (Frost); MASSACHUSETTS. Bellport, June 5-25 (Nicolay); Pinelawn, June 14 (Leng), Wading River, June 23 (Nicolay), Long Island; NEW YORK. Mount Pocono, July 8 (Nicolay), Hunters Run, July 11 (Knull); PENNSYLVANIA.

Holotype and allotype in Nicolay collection. Paratypes in Leng, Frost, Knull, Knaus, Amer. Mus. Nat. Hist., and Nicolay collections.

Occurs with *ovatus* but much rarer. *Bellporti* as a variety has the same relationship to *ovatus* as *blatchleyi* has to *floricola*. Named after the town where the type specimens were taken and where the senior author spent three pleasant summers of his early beetle collecting days.

Brachys fasciferus Schwarz, 78-363 (Plate XI, fig. 3).

(Original description.)

"Similar to *B. ovata* but shorter, broader in front and more attenuate behind and easily distinguished by the broad white fascia on the elytra and by the formation of the prosternum. Head and thorax as in *B. ovata* the former less strongly excavated. Elytra striate-punctate, punctures finer and obsolete towards the apex, anteriorly with irregular lines and patches of fulvous and whitish pubescence, behind the middle with a broad fascia of dense whitish pubescence with only a few fulvous hairs intermixed, behind this with two other undulated fasciæ composed of fulvous hairs, bordered anteriorly with white, humeral and marginal carina as in *B. ovata*. Fissure of prosternum not reaching the hind margin but leaving a comparatively broad margin intact; apex of metasternum in the middle suddenly and deeply emarginate. Last ventral segment with the usual marginal sulcus not emarginate in the male, broadly rounded in the female, less broadly in the male, anus very finely pectinate. Length 4-5.5 mm. Florida, not rare, lives on *Quercus virens*. In *B. ovata* and *tesselata* the undivided portion of the prosternum is very narrow and the metasternum is broadly triangular, emarginate in front."

Localities.—La Belle April 19 (Knull), Enterprise May 26, Cedar Keys, Jacksonville, Tampa April 4 (Hubbard and Schwarz), Dunel-

Ion September 19, Anona September 17, Fort Myers September 13 (Rehn and Hebard), Kissimmee April 20 (Mason), Jupiter May 2 (Nicolay coll.); FLORIDA. (Leng Collection.) GEORGIA.

This southern species is remarkably constant in size, color and arrangement of the pubescence. It can be separated from all others by the broad band of whitish pubescence just behind the middle, its uniformly dark color and rather broadly rounded last ventral segment. Also the abdominal segments are more densely pubescent than in our other species, the vestiture consisting of moderately long, recumbent ferruginous hairs mixed with silvery ones which are dense along margins. Not rare where it is found.

Brachys ærosus (Melsheimer), 46-148 (Plate XI, fig. 7).

tessellatus ‡ (Melsheimer), 46-148.

(Original description.)

"*Trachys tessellata*. Black, elytra tessellated with white. Fabr. Syst. Eleuth. ii, 218, 1. The female is smaller than the male with the elytra dusky-purple, tinged with steel-blue, apex cupreous, varied with pale ferruginous; beneath glossy black, with the apex of the abdomen rounded. It is the *Buprestis ærosa*, Melsh. Catal."

Broadly ovate, sinuate from shoulder to about apical half, thence narrowed toward apices of elytra. Steel-blue often with a slight brassy or purplish lustre. Elytra very irregularly, rather densely and deeply punctate striate, carinæ same as in preceding species, pubescence ranging from gray to fulvous or yellow, arranged in three more or less distinct very irregular, sinuate, transverse bands, basal and medial bands often almost entirely wanting or represented by mere spots of pubescence, subapical band more decided, uniform and constant; concave behind shoulders which are prominent, tips pectinate. Scutellum large, transverse, smooth, surface variable. Thorax very deeply transversely depressed, widest at base, front convex, impunctate, clothed with short rather dense pubescence. Head with deep longitudinal impression, rather concave, pubescent, tubercles above eyes not very convex or prominent. Ventral surface black, shining or brassy, with very short, sparse whitish pubescence; last ventral segment in both sexes truncate to slightly rounded at sides, segment of female sometimes minutely sinuate but never emarginated as in preceding species. Length 3-5.75 mm.

Localities.—The most abundant and probably most widely distributed species being reported from Canada to Florida and west as far as Alberta, Canada in the north to Texas and Arizona in the south. Very common around New York City on oak leaves in early summer.

It is remarkable that this very variable species has been described but once and then only in a brief and inadequate way. *Ærosus* can be separated from *ovatus* and all of the preceding forms not only by lacking the deep emargination of the last ventral segment of the female but by the dense subapical pubescence while the basal and medial bands are usually quite broken and indistinct and never bordered by the narrow white fascia so common in *ovatus*. Furthermore the pubescence of the apex is often yellow or fulvous while that on the remainder of the elytra is gray. The larvæ having habits identical with those of the larvæ of *ovatus*, the great difference in size of certain of the adults may be due to the supposition already advanced. We believe that Le Conte in his revision mistook some of the small specimens of *ærosus* for *æruginosus* when he drew up his description of the species. The form with rather dark elytra and fulvous pubescence appears to be most common in New England where Mr. C. A. Frost has taken quite a large series especially around Framingham, Mass., and Paris, Maine.

Brachys ærosus var. *rufescens* new variety.

Same structural characters as those of the type. Differs only in the pubescence being a brilliant cupreous to ferruginous, rarely intermixed with fulvo-æneous. Elytra generally cupreous to brilliant æneous but sometimes bluish-purple or very rarely without any purplish tinge. Pubescence usually much denser and fasciæ more distinct than in *ærosus*, especially the basal and medial fasciæ. Other characters identical with those of type. Length, 3.75–4.5 mm.

Localities.—Beaver Dam, June 14 (Snyder); WISCONSIN. Iowa City, June 3 (Lindsey); IOWA. Husted, May 22, June 30, Plainfield, June 14 (Nicolay); NEW JERSEY. Framingham, May 26 (Frost); MASSACHUSETTS. Buffalo (Leng collection), Bellport, June 7 (Nicolay), Jamaica, Long Island; NEW YORK. Hummelstown, June 20 (Knull); PENNSYLVANIA.

Type in the Nicolay collection. Paratypes in the Leng, Frost, Knull, Amer. Mus. Nat. Hist., and Nicolay collections.

This variety appears to reach its most distinct development in Iowa where the very depressed, cupreous examples with ferruginous pubescence seem far removed from the typical *ærosus*. However several intermediates and peculiar individuals prohibit the

erection of a valid species. In fact among the hundred or more specimens of *ærosus* and its variety before us, are many forms which might fit in either the stem species or the variety. *Rufescens* occurs with *ærosus* but not in such large numbers.

Brachys æruginosus Gory, 41-335 (Plate XI, fig. 8).

(Translation of original description.)

"Æneous, granulose; thorax dilated; elytra irregular; ventral surface and legs obscure æneous. Length 3 mm. Width 1.75 mm.

"Bronze, granulated. Head finely punctured, very deeply in the middle. Thorax wider than the head anteriorly, gibbous at this part widening posteriorly which forms the very dilated posterior angles; its base is very sinuate and a little raised forming a depression between the gibbosity which is nearer the head and the base of the thorax. Shield triangular. Elytra wider at the base than the posterior angles of the thorax, slightly depressed behind the humeral angles, contracted and rounded at their extremities; these are granulated and irregular. Ventral surface of body and feet of an obscure bronze. This species is placed after *tenella*."

Rather broadly ovate, slightly sinuate from shoulder to about apical half thence gradually to sharply tapering to apices of elytra. Black usually with more or less of a brassy lustre. Elytra punctate striate, punctures coarse, shallow and irregular, intermixed with smaller ones; a very distinct carina running from humerus almost to apex of elytra; pubescence arranged in three irregular sinuate, transverse fasciæ, silvery to light golden in color, never rufescent, one sub-basal, another median and the third near and usually covering apex of elytra, glabrous space between last two fasciæ broadest and most distinct; tips of elytra pectinate, truncate to slightly rounded; humerus distinct, elevated; body somewhat concave behind base. Scutellum narrow, very transverse, generally smooth but subject to the usual degree of variation common in this genus. Thorax deeply, transversely depressed at base, impunctate, widest at base rather sharply narrowed toward eyes; more brassy or bronzed than elytra, pubescence dense along basal and lateral margins, sparsely toward centre. Head with a deep longitudinal impression, concave, shining and with pubescence. Eyes prominent. Ventral surface brassy, abdominal segments with short, fine silvery pubescence, last segment narrowly

truncate to slightly rounded at sides, never emarginate. Length 3-3.75 mm.

Localities.—KANSAS. Sioux City, June 24 (Lindsey); IOWA. Framingham, May 31-June 6 (Frost); MASSACHUSETTS. Milltown, May 27; NEW JERSEY. Monmouth, June 22 (Frost); MAINE. Bellport, Long Island, June 5-July 22 (Nicolay); Staten Island (Leng), Pinelawn, Long Island, June 14; NEW YORK. Starke, Pultaski and Marshall Counties, June 11-19, rare (Blatchley); INDIANA. TENNESSEE (Nicolay collection).

This species has the structural characters of *erosus* while the color and arrangement of the pubescence is similar to that of *ovatus* var. *bellporti*. It differs from the former by its uniformly smaller size and silvery pubescence and from the latter by the female not having the last ventral segment emarginate and always smaller and broader body. There is a rare form that has some ferruginous pubescence mixed with the gray which however predominates. *Æruginosus* is not as common as either of the above species but is found along with them on the leaves of scrub oak in early summer.

LIST OF SPECIES.

GROUP TRACHES.

Pachyschelus Solier, 33-313.

Metonius Say, 36-264.

purpureus (Say), 36-164.

americanus Gory, 41-346.

lævigatus (Say), 36-164.

ovatus || (Say), 25-252.

punctatus (Gory), 41-347.

carbonatus (Le Conte), 59-252.

politus Kerremans, 96-322.

schwarzi Kerremans, 92-298.

caruleus || Schwarz, 78-364.

v. *oculatus* Schaeffer, 09-377.

Brachys Solier, 33-312.

floccosus Mannerheim, 37-118.

cephalicus Schaeffer, 09-377.

tessellatus (Fabricius), 01-218.

lugubris Le Conte, 59-251.

floricola Kerremans, 00-347.

cuprascens Blatchley, 13-23.

v. *blatchleyi* nov. var.

ovatus Weber, 01-76.

aurulentus (Kirby), 37-162.

terminans ‡ Cast. & Gory, 39-3.

tessellatus ‡ Cast. & Gory, 39-3.

molestus Gory, 41-332.

lævicauda Le Conte, 59-252.

horni Kerremans, 96-324.

v. *bellporti* nov. var.

fasciferus Schwarz, 78-363.

ærosus (Melsheimer), 46-148.

tessellatus ‡ (Melsheimer), 46-148.

v. *rufescens* nov. var.

æuginosus Gory, 41-335.

Taphrocerus Solier, 33-314.

puncticollis Schwarz, 78-363.

schaefferi Nicolay & Weiss, 20-144.

agriloides Crotch, 73-75.

lævicollis Le Conte, 78-403.

gracilis (Say), 25-252.

alboguttatus (Mannerheim), 37-120.

cylindricollis Kerremans, 96-312.

? *texanus* Kerremans, 96-312.

albonotatus Blatchley, 19-29.

(*Brachys pratexta* Gory is a manuscript name. The description was never published.)

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ACKNOWLEDGMENTS.

We take this opportunity to thank Mr. W. S. Fisher who not only secured several obscure references for us but also dissected many specimens in order to ascertain for a certainty, the peculiar sexual differences of some of the species. We are also very grateful to Mr. C. W. Leng, Mr. C. A. Frost, Mr. Frank R. Mason, Mr. Warren Knaus, Mr. Charles Schaeffer and Mr. Andrew J. Mutchler for placing their collections at our disposal and to Dr. Henry Skinner for granting us access to the Horn collection.

EXPLANATION OF PLATE XI.

- FIG. 1. *Brachys floccosus*.
 FIG. 2. *Brachys cephalicus*.
 FIG. 3. *Brachys fasciferus*.
 FIG. 4. *Brachys floricola*.
 FIG. 5. *Brachys ovatus*.
 FIG. 6. *Brachys tessellatus*.
 FIG. 7. *Brachys erosus*.
 FIG. 8. *Brachys æruginosus*.